

ARCADIAN

Volume 4, Number 4

January 22, 1982

CES IS OVER and I had an enjoyable but tiring four days. Also attending were: Andy Guevara of The Bit Fiddlers; Dick Houser of The Source Book; George Moses of George Moses Co.; John Perkins of Perkins Engineering; and Mike Toth & Marion Nalepa of Spectre Systems.

We all worked to help the AstroVision personnel show off the Arcade, the new game cartridges, and point out the features of the new Basic. We also met a number of subscribers and a few old acquaintances.

AstroVision had a good-sized booth, with 9 machines mounted on pedestals, each having a tv mounted above for good visibility, plus a giant tv console for really showing up the details of the game cartridges, and then two more tv's dedicated to the Add-Under. These were staffed by ZsuZsa Molnar and Frank Dietrich. Various AstroVision personnel and the distributors spent their time selling the product. For those visitors showing technical interest, we showed the Blue Ram, the Viper System 1 memory board, and the Bit Fiddler cartridge. We also had the Roger Saunders Edge Labels for display.

GAME STATUS will be indicated here, a more descriptive article will be presented next time.

Now available: Grand Prix, Galactic Invasion, Space Fortress, and Biorythm. Coming up soon will be Pirate's Chase, MusicMaker, and The Wizard. After these will be Cosmic Raider and Coloring Book. There is a candidate for PacMan and it will be ready when some non-technical problems are ironed out.

Samples of everything except PacMan and Biorythm were shown. Two future candidates are Quest for the Orb, and SolarQuest.

THE ADD- UNDER units were very popular. While a number of programs were "canned", that is, they were on disc, both ZsuZsa and Frank made up little displays on the spot, and showed how the machine's ZGrass language could access the "macros" (large scale sub-routines) and show parts of pictures, reverse pictures, and rotated pictures. The most interesting item was a facial figure, made up of three subroutines - one for each eye and one for the mouth - each of which had a motion routine (each eye could be open, closed, look left, straight, or right, for example.) By some simple commands, the eye would then wink or look around. This was coupled to the Votrax sound synthesizer, so that the mouth movements followed the preprogrammed vocal phrases. While these units had two disc drives associated with each of them, the production units will not. The internals will be compatible with the addition of a disc operating system, which will be an optional accessory.

The current status of the Add-Under places it in the hands of the FCC next month for approval. Then production can get under way and deliveries should be in the 90-120 day region. If you are interested in the Add-Under, whose price is currently holding at the \$600 level, let me know. There is a good possibility that we may have one of the samples on display at the West Coast Computer Faire, here in San Francisco, this March. More on that next time.

THIRD-PARTY SOFTWARE, that is, material developed by parties outside the AstroVision design and development organization, is in demand by everyone. If you are interested in writing software for the Arcade, of marketable quality, please contact me for details. Those who advertise in the ARCadian will be receiving a separate letter from me about this.

CONTEST ENTRIES THIS ISSUE are the programs* Cube, Pro-Bowl, and Alien.

BIT FIDDLER REVIEW - 2. In this issue we provide another review of the new cartridge by the Bit Fiddler, this time by Tom Wood.

Machine Language Monitor program

Ever wished for really fast graphics or control of the screen for full use of the 256 color capability? As I'm sure you guessed, these feats require the use of machine language (or perhaps the add-under when....) and machine language and BASIC just don't make a good couple. The Bally Arcade has long needed a well thought out monitor program; one that would permit a decent range of memory manipulation, cassette tape input/output, memory dump and program breakpoint facilities. This monitor would, preferably, be relatively inexpensive, utilize the game cassette connector and the built-in keypad. This would mean displacing BASIC, but since we have already committed to machine language, BASIC is of no further use.

Prayers are answered

The Bit Fiddlers have been listening and have recently introduced a very professional package which does all this and more. The Machine Language Monitor (MLM) is provided in its very own game-type cassette, complete with new keypad overlay and manual consisting of approximately 96 pages. Very unusual about this package is that 28 pages of this manual are the assembly listing for MLM itself. This listing is provided so that users may use any of the MLM routines instead of re-inventing the wheel.

Although I was able to use MLM for only a few hours, I was able to confirm that it performs to the manufacturers claims. It is also evident that it opens up a whole new set of sophisticated possibilities from other ARCADIANS who have already proven themselves to be an extremely resourceful lot. Using MLM, all of the Arcade facilities are available to your program including light-pen and screen interrupts, all 256 colors, direct control of the MAGIC register, full use of the 3-voice sound generator, the expansion port, game connectors etc.

About the only restriction I see is that the basic Arcade just doesn't contain much memory. MLM permits maximum use of the space that is available, allowing you to trade off viewable screen area for more program area. This feature provides 140 Hex (320 decimal) bytes and use of most of the screen, or more program bytes as you decrease viewable screen area. This space and use of MLM routines will permit reasonably sophisticated programs to be run, but as your desires and expertise increase, your need for additional memory will also increase. Luckily, MLM is compatible with any of the expansion facilities currently available.

The facilities provided by MLM are requested via the keypad layout illustrated here. In general, hex numbers are entered first followed by a key informing MLM what the hex data is to mean. Thus to enter address 123E hex, simply key in 1, 2, 3, E, ADDR. Since no more than 4 digits are being entered at once, MLM provides no backspacing or correction capabilities as such. Instead, just keep entering data until the last 4 (or 2) digits entered are correct. Complicated to explain, easy to use.

	D	E	F	CALL
A	B	C	REG	
7	8	9	LIST	
4	5	6	INS	
1	2	3	READ	
*	0	WRITE	ADDR.	

ARCADIAN

This monitor includes a feature that is both useful and dangerous, that of the INS key. With it data in memory is moved up to make room for new data (or, using *INS, moved down to delete extra data) thus saving a lot of keystrokes when inserting forgotten opcodes. One must remember, however, that internal program addresses will also change. This is no problem for relative jumps, but absolute jumps and calls can become disasters for the unwary.

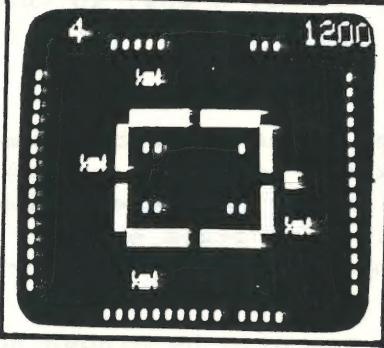
The asterisk (*) key serves as a "shift" key for certain command keys. Thus, *WRITE means output to tape, *READ is tape input, *INS is delete, *LIST is print and *REG is tape list without load.

I wish I had the room to go into further details about MLM, but that isn't possible here. If your appetite is whetted it is justified. Any "hacker" needs MLM. It is worth the investment and will permit you to enjoy the programs written using it in the future. Now, anyone working on an assembler???

A final word on this package. We will be supporting the use of machine language programs in the ARCADIAN, and solicit your inputs. Here is another way to increase your knowledge of computers in general and the Arcade specifically.

ASTRO- is now the official name for the various items - all new production hardware will have "Astro-" instead of the prior "Bally-" title.

TWO NEW GAMES IN BALLY BASIC

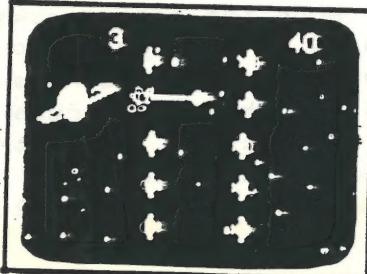


Quadron

Prevent waves of monsters from breaking through your energy fortress.

Pilot your ship through two columns of missile-firing aliens

SPACE GAUNTLET

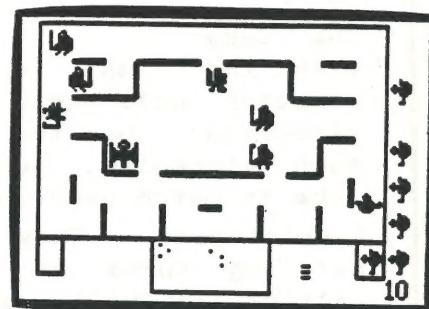


Both games on one cassette \$9.50

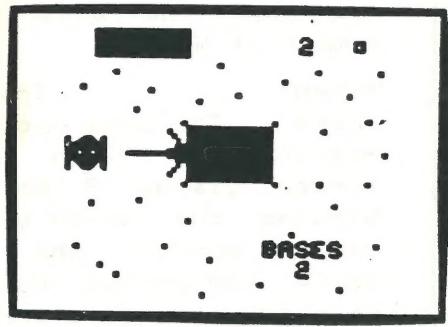
Order Tape #100
Please specify
Bally or Astro. P.O. Box 1043
Basic

The tiny arcade
Cuyahoga Falls, OH.
44223

These sketches illustrate the screens of two of the new AstroVision games.



THE WIZARD



SPACE FORTRESS

ASTRO-BASIC MANUAL CORRECTION There is a direct typo in the program "Artillery Duel" on page 95. In line 430, where BC is controlled, the printer dropped the initial "R" in the Random command, so change the printed portion to read BC=RND(3)*13+86 Then in line 190, when entering this line, be certain to leave a space after the IF statement. The printed line overflow to the next line has caused some confusion. This portion of the line should look like this:

```
IF W TV=95+(W>0)*2
```

SOME INTERESTING INFORMATION gleaned from the news releases presented by AstroVision management at the CES.

We have all complained about the lack of product, and the lack of advertising. These shortcomings are about to disappear - - -

Production capability is planned to triple this year. In addition to the existing facility in Garner, IA, the new plant in Sacramento, CA is expected to be on-line in February, and negotiations are underway for a third location in the Lancaster, PA area. With these plants up and running, plus other sub-contract locations, the capacity would be in excess of one-half million Arcades, 5 million cartridges, and 50,000 ZGrass units per year.

The Las Vegas area was saturated with a tv commercial during the 5 days of the show. Astrovision's advertising agency had made up a 30 second commercial showing some of the new cartridges, and this was shown 121 times - a full hour of time. This was the kickoff of the 1982 campaign, which will see an expenditure of \$10 million dollars in tv advertising. This same commercial will now be sent to 50 major market areas, so keep an eye out for it.

GAME INSTRUCTIONS

The Cube: The diagram on the screen shows the cube 'unwrapped', with the front to the left. You must mix the puzzle up yourself - the computer acts only as a recorder of your moves. Moves are always made clockwise. Use the keypad to enter the moves. To rotate section 1 by one turn clockwise, you would input 11. The computer will then rearrange the cube to match your directions.

Cryptologic: This is a two-player game that can also be played by teams, rotating turns at guessing. When the screen asks, enter the number of letters in your word(s). (From 6 to 20) Spaces count as letters. While your opponents face the other way, enter your word(s) using the keypad. If you make an error, you must restart the game (press HALT, then WORDS RUN GO). After checking for errors, press GO. The entry will be erased, and then scrambled, using a random scrambling technique. The 'other side' must rearrange the letters/spaces into the proper relationship using a minimum number of moves.

Alien: The computer gives you 100 seconds of time to get a high score. The game stops at that time, or if you run out of bullets earlier. Hitting the Alien nets you 5 points, hitting the wall at the top of the screen yields 3 points. Once in a while there is a 'bonus' period when hitting the alien will increase your score by the bonus amount. When the screen buzzes, the Alien's spy satellite is whizzing by. A hit on it is worth 100 points, but it is very difficult. Use the joystick knob to move your gun laterally across the bottom of the screen, and the trigger to fire directly upward.

ARCADIAN

THE CUBE

```

1 CLEAR ;BC=RND (32)b8;FC=BC+4+RND (32)b8;GOTO 20
2 CX=X;CY=Y;PRINT #1,@(A),;A=A+1;Y=Y+B;RETURN
3 FOR C=1TO B;M=@(P);@(P)=@(P+6);@(P+6)=@(P+8);@(P+8)=@(P+2);@(P+2)=M;M=@(P+1)
  ;@(P+1)=@(P+3);@(P+3)=@(P+7)
4 @(P+7)=@(P+5);@(P+5)=M;NEXT C;RETURN
5 FOR C=1TO B;D=P;FOR Z=33+DTO 27+DSTEP -3;M=@(D);@(D)=@(Z);@(Z)=@(Z+18);@(Z+
18)=@(D+18);@(D+18)=M;D=D+3;NEXT Z;NEXT C;RETURN
6 FOR C=1TO B;D=20;FOR Z=PTO P+2;M=@(Z);@(Z)=@(Z+9);@(Z+9)=@(Z+D+9);@(Z+D+9)=
@(Z+D);@(Z+D)=M;D=D-2;NEXT Z;NEXT C;RETURN
8 FOR C=1TO B;D=16+Pc3;E=47+P;F=37+Pc3;FOR Z=PTO P+2;M=@(Z);@(Z)=@(D);@(D)=@(E);
  ;@(E)=@(F);@(F)=M
9 D=D-3;E=E-1;F=F+3;NEXT Z;NEXT C;RETURN
20 Y=0;A=-7;FOR X=-78TO 65STEP 13;BOX X,Y,1,42,1;Y=Y+A;IF (Y=-21)+(Y=21)A=Ab(-1)
1) 30 NEXT X;LINE -78,21,0;LINE -39,42,1;LINE 0,21,1;LINE -52,35,0;LINE -13,14,1;
LINE -65,28,0;LINE -26,7,1;LINE -78,21,0;LINE -39,0,1;LINE 39,42,1
40 LINE 78,21,1;LINE -78,7,0;LINE -39,-14,1;LINE 39,28,1;LINE 78,7,1;LINE -78,
-7,0;LINE -39,-28,1;LINE 39,14,1;LINE 78,-7,1;LINE -78,-21,0
50 LINE -39,-42,1;LINE 39,0,1;LINE 78,-21,1;LINE -65,14,0;LINE -26,35,1;LINE -
52,7,0;LINE -13,28,1;LINE 13,-28,0;LINE 52,-7,1;LINE 26,-35,0
60 LINE 65,-14,1;LINE 13,-14,0;LINE 52,-35,1;LINE 26,-7,0;LINE 65,-28,1;LINE 7
8,-21,0;LINE 39,-42,1;LINE 0,-21,1
70 A=1;FOR Z=0TO 5;FOR B=Zb9+1TO Zb9+9;@(B)=A;NEXT B;A=A+1;NEXT Z
80 A=1;Y=21;B=7;FOR X=-64TO -38STEP 13;GOSUB 2;NEXT X;Y=14;FOR X=-51TO -25STEP
13;GOSUB 2
90 NEXT X;Y=7;FOR X=-38TO -12STEP 13;GOSUB 2;NEXT X;Y=11;B=-7;FOR X=-71TO -45S
TEP 13;GOSUB 2
100 NEXT X;Y=-3;FOR X=-71TO -45STEP 13;GOSUB 2;NEXT X;Y=-17;FOR X=-71TO -45STEP
13
110 GOSUB 2;NEXT X;Y=-3;B=7;FOR X=-32TO -5STEP 13;GOSUB 2;NEXT X;Y=-17
120 FOR X=-32TO -5STEP 13;GOSUB 2;NEXT X;Y=-31;FOR X=-32TO -5STEP 13;GOSUB 2;NE
XT X
130 Y=18;FOR X=8TO 34STEP 13;GOSUB 2;NEXT X;Y=5;FOR X=8TO 34STEP 13;GOSUB 2;NEX
T X
140 Y=-8;FOR X=8TO 34STEP 13;GOSUB 2;NEXT X;Y=32;B=-7;FOR X=46TO 72STEP 13;GOSU
B 2;NEXT X
150 Y=18;FOR X=46TO 72STEP 13;GOSUB 2;NEXT X;Y=4;FOR X=46TO 72STEP 13;GOSUB 2;N
EXT X
160 Y=-21;B=7;FOR X=14TO 40STEP 13;GOSUB 2;NEXT X;Y=-28;FOR X=27TO 53STEP 13;GO
SUB 2;NEXT X;Y=-35;FOR X=40TO 66STEP 13;GOSUB 2;NEXT X
170 CX=-5;CY=40;A=KP-48;TV=A+48;B=KP-48;TV=B+48;GOSUB Ab1000;GOTO 80
1000 P=10;GOSUB 3;P=1;GOSUB 5;RETURN
2000 P=2;GOSUB 5;RETURN
3000 P=37;GOSUB 3;P=3;GOSUB 5;RETURN
4000 P=19;GOSUB 3;P=7;GOSUB 8;RETURN
5000 P=4;GOSUB 8;RETURN
6000 P=28;GOSUB 3;P=1;GOSUB 8;RETURN
7000 P=1;GOSUB 3;P=10;GOSUB 6;RETURN
8000 P=13;GOSUB 6;RETURN
9000 P=46;GOSUB 3;P=16;GOSUB 6;RETURN

```

Bob Weber
 355 South Main St.
 Marine City, MI, 48039

\$

ARCADIAN

PRO BOWL

```

1 CLEAR
4 BC=147;GOTO 11
5 CX=-45;CY=-30;W=RND (5);RETURN
6 CX=-65;CY=-5;RETURN
7 W=RND (3);RETURN
8 W=RND (2);RETURN
9 G=0;Y=0;RETURN
11 A=0;N=0;Y=0;Q=1;M=15;S=0;F=1;G=1;H=10;X=-30
20 BOX 0,-30,120,20,1;BOX 0,-30,100,18,2
21 D=-40;FOR E=1TO 9;BOX D,-38,1,3,1;D=D+10;NEXT E;GOSUB 40;GOSUB 60;GOTO 100
30 G=G+1;IF G=5IF H-Y>0G=1;F=3-F;H=10
31 H=H-Y;IF (H<1)+(G=1)H=10;G=1
32 S=S-(RND (20)+10);IF S<10M=M-1;S=60-RND (10);IF M<2IF (Q=2)+(Q=4)BC=106
33 IF M<0Q=Q+1;M=15;S=0;IF Q=3X=30;Y=0;F=2;G=1;H=10;BC=147;GOSUB 60
34 IF Q=5Q=4;M=0;S=0;GOSUB 40;STOP
40 CY=40;CX=-77;PRINT " AFC      TIME      NFC"
45 PRINT #3,A,#9,M,":",#0,S,#9,N
47 PRINT ;PRINT "DOWN",#2,G, " QUARTER",#2,Q
48 IF G=1IF F=1IF X>39GOTO 51
49 IF G=1IF F=2IF X<-39GOTO 51
50 GOTO 54
51 H=50-ABS(X)
54 PRINT "YDS TO GO",#4,H
55 CX=0;CY=-15;IF F=1PRINT "a";GOTO 57
56 PRINT "-"
57 RETURN
60 BOX 0,-30,100,10,2;IF F=1X=X+Y;IF X>49X=50
61 IF F=1GOTO 63
62 X=X-(Y);IF X<-49X=-51
63 BOX X,-30,1,1,1
70 IF F=1IF X>49A=A+7:X=30;GOSUB 9;F=2;GOSUB 80
71 IF F=1IF X<-49N=N+2;X=0;GOSUB 9;F=2;GOSUB 85
72 IF F=2IF X<-49N=N+7;X=-30;GOSUB 9;F=1;GOSUB 80
73 IF F=2IF X>49A=A+2:X=0;GOSUB 9;F=1;GOSUB 85
74 BOX X,-30,1,1,1;RETURN
80 GOSUB 5;PRINT "TOUCHDOWN";GOTO 89
85 GOSUB 5;PRINT "SAFETY"
89 BOX 0,-30,100,10,2;RETURN
100 GOSUB 6;PRINT "INPUT OFF."
105 O=0
110 IF JY(1)=10=1
120 IF JY(1)=-10=2
130 IF JX(1)=10=3
140 IF JX(1)=-10=4
150 IF TR(1)=5
160 IF O>0GOTO 200
170 GOTO 100
200 GOSUB 6;INPUT "INPUT DEF."P
210 IF (O=1)+(O=2)GOTO 700
215 IF RND (20)=17GOSUB 5;PRINT "FUMBLE";GOSUB 355;GOTO 690
220 GOSUB 5;GOSUB 10b0+300;GOTO 690
310 Y=RND (5);IF P=1Y=Y-RND (3)
311 IF P=5IF W=3Y=0
312 IF P=5IF W#3Y=Y+3
313 RETURN

```

Mario DeLaura
87 Close Hollow Dr.
Hamlin, NY 14464

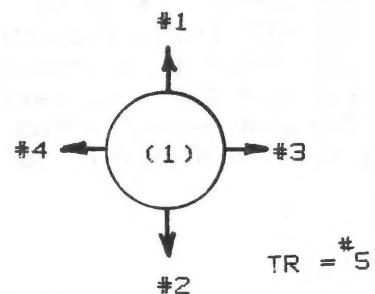
```

320 Y=RND (7); IF P=2Y=Y-RND (5)
321 IF P=5IF W=3Y=-2
322 IF P=5IF W#3Y=Y+5
323 RETURN
330 GOSUB 7; IF W=1GOTO 750
331 IF P=3GOSUB 8; IF W=1GOTO 750
332 Y=RND (9); GOTO 800
333 GOSUB 5; IF P=5IF W=3GOTO 900
334 IF P=5IF W#3Y=Y+5
335 RETURN
340 GOSUB 7; IF W=1GOTO 750
341 IF P=4GOSUB 8; IF W=1GOTO 750
342 Y=RND (15)+5; GOTO 800
343 GOSUB 5; IF P=5IF W=3GOTO 900
344 IF P=5IF W#3Y=Y+9
345 RETURN
350 Y=RND (20)+30; IF P=5IF RND (10)=2GOTO 730
351 IF F=1IF X+Y>49GOSUB 760; A=A+3; X=30; GOTO 355
352 IF F=2IF X-(Y)<-49GOSUB 760; N=N+3; X=-30; GOTO 355
353 IF F=1X=X+Y; GOTO 355
354 X=X-(Y)
355 GOSUB 9; F=3-F
356 RETURN
690 GOSUB 60; GOSUB 30; GOTO 100
700 IF RND (20)=15Y=RND (30)+10; GOSUB 5; PRINT "BREAKAWAY"; GOTO 690
710 GOTO 220
730 GOSUB 5; PRINT "BLOCKED"; GOTO 355
750 GOSUB 5; PRINT "INCOMPLETE"; Y=0; RETURN
760 GOSUB 5; PRINT "FG"; RETURN
800 W=RND (10); IF W=7CX=-45; CY=-30; PRINT "INTERCEPTED"
810 IF W=7G=0; F=3-F; RETURN
830 IF O=3GOTO 333
840 GOTO 343
900 GOSUB 5; PRINT "Q-TRAP"; Y=-RND (15)
910 RETURN

```

Pro-Bowl: Use the chart below to enter your plays - the Offense uses Joystick (1) for its inputs (see the sketch), while the Defense uses the keypad. The arrow on the screen indicates ball direction. The game includes fumbles, touchdowns, field goals, safeties, and a two minute warning. Breakaways are possible on running plays, and incompletes and interceptions possible on passing plays.

PLAYS	
OFFENSIVE	DEFENSIVE
	choice
OFF TACKLE	- 1 -
END RUN	- 2 -
SHORT PASS	- 3 -
LONG PASS	- 4 -
KICK	- 5 -



ARCADIAN

ALIEN

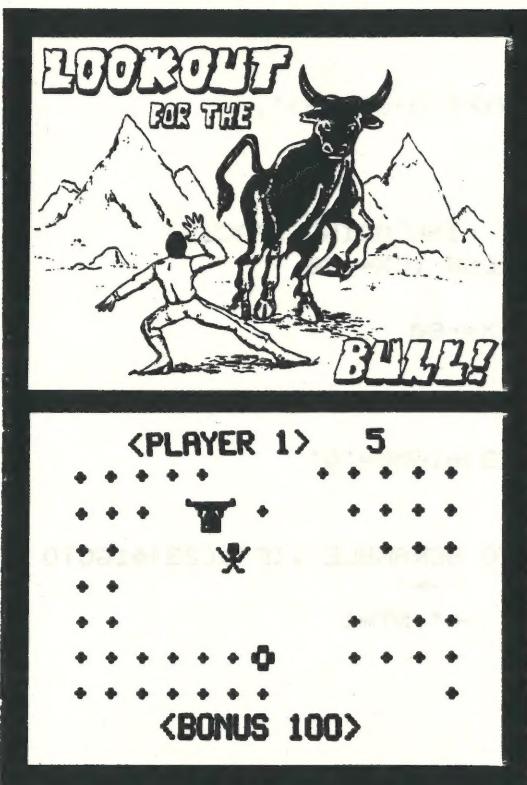
```

1 &(9)=165;&(0)=0;&(1)=0;&(2)=99;&(3)=99;I=20;L=510
2 Q=0;T=101;&(I)=0;X=RND (35);CLEAR ;FOR A=-78TO -28STEP 2;BOX A,-42,1,4,1;NE
XT A;B=-80
3 K=0;U=0;S=-55
4 BOX 27,40,106,3,1
10 CY=39;PRINT " SCORE `";PRINT Q;CY=11;PRINT " SECONDS";CY=-37;PRINT " BULLET
S
20 X=RND (99)-I;Y=RND (I);FC=10
30 BC=7;BOX 27,-2,106,84,2;GOSUB 350;IF (T=20)+(T<11)NT=1;MU="Q";NT=0;IF T=0GO
TO 400
40 X=X+RND (10)-5;IF X>76X=76
50 Y=Y+RND (7)-3;IF Y<-32Y=9
51 IF UGOSUB 600
60 IF Y>34Y=34
70 IF X<-20X=0
80 CX=X-1;CY=Y;TV=102;K=KN(1)c3+22;BOX K,-39,3,10,1;BOX K,-42,7,4,3;IF TR(1)=0
GOTO 30
90 IF UIF K=SGOTO 700
100 B=B+2;N=1;R=76;O=0;BOX B,-42,1,4,2;IF K>X-5IF K<X+4N=12;GOSUB 300
180 BOX K,0,1,R,3;NT=1;FOR A=1TO N;MU=I;BC=AbK;NEXT A;BC=7;IF B=-28GOTO 400
181 IF @(6)=1GOTO 190
182 IF PX(K,40)BOX K,40,3,6,2;Q=Q+3;CX=-90;CY=31;NT=0;PRINT Q
190 @(6)=0;GOTO I+(RND (I)>1)b10
300 O=(Y-40)c2;R=Y+40;Q=Q+W+5;CY=31;CX=-90;NT=0;@(6)=1;PRINT Q;RETURN
350 CX=-90;CY=3;T=T-1;NT=0;PRINT T;W=0;IF RND (9)=9W=RND (5)b10;NT=1
355 IF U=0IF RND (50)=5U=1;NT=1;FOR A=1TO I;MU="B";NEXT A;NT=0
360 IF W CY=-9;CX=-66;PRINT " BONUSa",W
370 RETURN
400 H=0;CLEAR ;IF Q>ZGOSUB 550
401 CY=39;PRINT " -GAME OVER-",;IF T=0PRINT "(TIME EXP.)";GOTO 405
402 PRINT "(AMMO GONE)"
405 &(I)=99;M=M+Q;P=P+1;IF M>30000M=0;P=0
410 PRINT " AVG. SCORE TODAYa",#1,McP;NT=9;PRINT " YOUR POINTSa",Q;GOTO 500+Hb1
0
500 IF Q>C V=J;J=G;G=C;C=Q;GOTO L
502 IF Q>G V=J;J=G;G=Q;GOTO L
503 IF Q>J V=J;J=Q;GOTO L
504 IF Q>U V=Q
510 NT=1;PRINT ' "TOP 5" SCORES OF TODAY' ;CY=CY-4
511 PRINT " #1 ",;FOR D=1TO F;TV=@(D);NEXT D;PRINT Z
512 BOX -8,3,144,9,3;CY=CY-4;PRINT " SECOND",C
515 PRINT " THIRD ",G;PRINT " FOURTH",J;PRINT " FIFTH ",V
520 IF TR(1)GOTO 2
525 NT=1;MU=Q
530 GOTO 520
550 V=J;J=G;G=C;C=Z;Z=Q;CY=30;PRINT " BEST SCORE! ENTER UP TO 5 SYMBOLS (FOR
I.D.)
560 INPUT " # OF LETTERS?"F;IF F>5GOTO 560
580 FOR D=1TO F;E=KP;TV=E;@(D)=E;NEXT D;CLEAR ;H=1;GOTO 401
600 S=S+4;IF S>80S=-55;U=0
610 BOX S,0,1,1,1;RETURN
700 W=0;Q=Q+95;GOSUB 300;S=-55;U=0;BOX K,-20,1,40,3;NT=1;FOR A=1TO I;MU=A;BC=Ab
8;NEXT A;NT=0;GOTO 30

```

Gary Green
 5582 Burns Rd.
 N. Olmsted, OH 44070

ARCADIAN



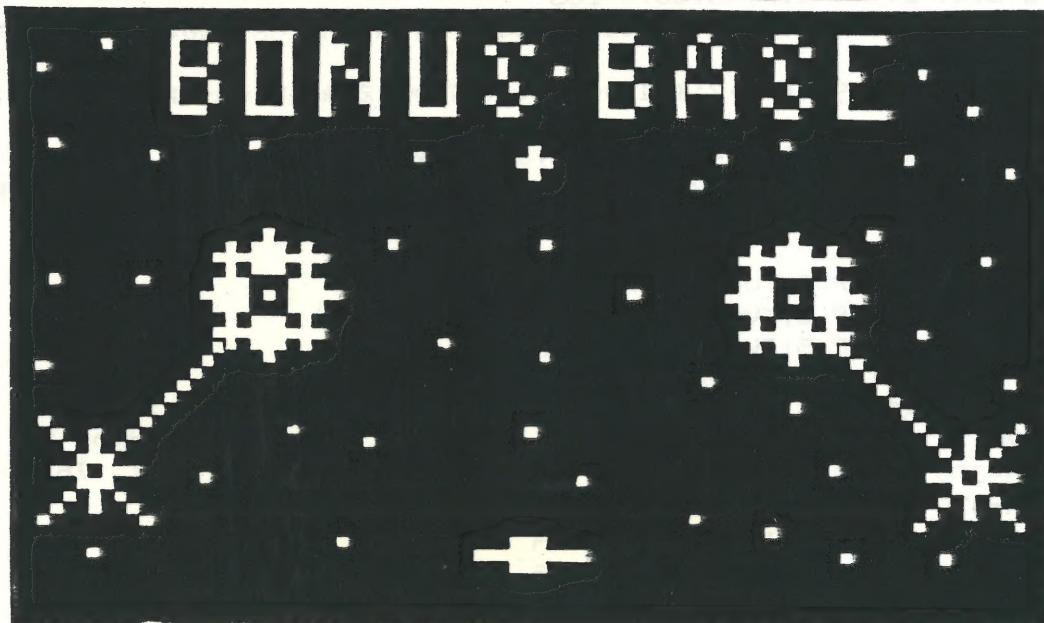
When you're READY for the Challenge

WE'VE GOT THE GAME!!

LOOKOUT FOR THE BULL IS THE FINAL CHALLENGE BECAUSE YOU CAN'T BEAT THE BULL. HE'S AS TOUGH AS YOU ARE AND HE NEVER QUILTS. UP TO FOUR PLAYERS, EXCELLENT MACHINE GRAPHICS, SOUNDS, AND ACTION. LIKE A CARTRIDGE GAME ONLY THIS ONE IS MUCH CHEAPER, IT'S ON TAPE. \$10.95 +50¢ POSTAGE AND HANDLING. SEND TO WAVEMAKERS, BOX 94801, SCHAUMBURG, ILL. 60193

IN ASTROVISION AND BALLY BASIC

METEOROIDS !



L
+
M
software

Meteoroids and Meteoroids II.. Both for \$9.95 on Cassette..

Please indicate if you have the NEW BASIC !!

8599 Framewood, DR.
Newburgh, IN. 47630

41

Master CHG. & Visa
accepted. Send # and
info. for prompt
service..

ARCADIAN

```

1 .<CRYPT-O-GRAMS>
2 .ADAPTED FOR THE
3 .BALLY ARCADE BY
4 .KEN SPRINGSTEEN
5 CLEAR ;&(10)=180;M=RND (2)
9 BC=135;FC=40
10 BOX 0,0,94,10,1;CY=0;CX=-42;PRINT "<CRYPT-O-GRAMS>",
15 FOR Q=1TO 950;NEXT Q
45 NT=1
60 CLEAR ;Z=0;V=0;A=0;B=0;D=0;E=0;W=0
75 CY=0;PRINT " NUMBER OF LETTERS? " ( INCLUDING SPACES )
90 INPUT " FROM 6 TO 20 LETTERS ONLY " K;CLEAR ;CX=-60
95 IF (K<6)+(K>20)CLEAR ;GOTO 75
100 CY=35;CX=-42;PRINT "<CRYPT-O-GRAMS>";CX=-60
105 CY=0;Z=Z+1;TV="-";IF Z=KGOTO 135
120 GOTO 105
130 NT=3
135 CY=0;CX=-60;FOR A=1TO K;@(A)=KP;IF &(23)=16MU="Q"
140 TV=@(A);NEXT A
150 PRINT ;PRINT ;CX=-60
155 NT=0;CY=-20;CX=-60;PRINT 'PRESS "GO" TO SCRAMBLE';IF &(23)≠1GOTO 155
157 CY=-20;CX=-60;PRINT "←" 22 spaces →"
165 CY=0;NT=10;PRINT "←" 23 spaces →";NT=1
180 CX=-60
200 IF M=2GOSUB 375
210 IF M=1GOSUB 435
285 NT=5;A=B-K;@(B)=KP;IF &(23)=16MU="Q"
295 TV=@(B);IF @(B)≠@(A)GOTO 330
300 IF B=Kb2GOTO 345
315 NEXT B;GOTO 285
330 NT=0;D=CX;E=CY;CY=18;CX=-15;PRINT "WRONG! ";NT=20;&(20)=100;MU=?;MU="";FO
R W=1TO 700;NEXT W
331 CY=18;CX=-15;NT=0;&(20)=0;PRINT " ";CX=D-6;CY=E;PRINT " ",;
332 CX=D-6;CY=E;V=V+1;NT=3;GOTO 285
345 NT=2;CX=-60;CY=20;PRINT "YOU GUessed IT WITH";CX=-60;CY=11;PRINT #0,V," EXT
RA GUesses!"
349 FOR A=256TO 125STEP -2;&(16)=100;&(17)=A-2;&(18)=A+2;&(19)=250;&(22)=255;NE
XT A
350 &(16)=0;&(17)=0;&(18)=0;&(19)=0;&(22)=0
355 CY=-31;NT=5;&(10)=142;PRINT "205060706050607000500050000";FOR W=1TO 500;NEX
T W;NT=3
365 RUN
375 FOR A=5TO KSTEP 5;TV=@(A);NEXT A
385 FOR A=2TO KSTEP 5;TV=@(A);NEXT A
395 FOR A=4TO KSTEP 5;TV=@(A);NEXT A
405 FOR A=3TO KSTEP 5;TV=@(A);NEXT A
415 FOR A=1TO KSTEP 5;TV=@(A);NEXT A
425 RETURN
435 FOR A=3TO KSTEP 5;TV=@(A);NEXT A
445 FOR A=4TO KSTEP 5;TV=@(A);NEXT A
455 FOR A=1TO KSTEP 5;TV=@(A);NEXT A
465 FOR A=5TO KSTEP 5;TV=@(A);NEXT A
475 FOR A=2TO KSTEP 5;TV=@(A);NEXT A
485 RETURN
500 :PRINT ;NT=1;PRINT "CY=39";CY=39
510 :PRINT ;LIST 1,13;GOSUB 550;LIST 100,13;GOSUB 550;LIST 285,8;GOSUB 550;LIST
349,9;GOSUB 550;LIST 425,7;PRINT "CLEAR ";RUN
540 GOTO 540
550 PRINT "CY=39";CY=39;RETURN

```

Ken Springsteen
1935 Winding Hill Rd. #1008
Davenport, IA 52807

ARCADIAN

ALTERNATIVE ENGINEERING REPORTS that all Viper 1 units which have been paid for have been shipped. It has taken a while, but they are now 'ahead of the game', and they can deliver from stock. The keyboard will be ready soon - I have an evaluation unit here, and can say that the quality of this unit is equal to the Viper itself. An eight-foot retractile cord connects it to the Viper 1, making it quite convenient to place in your lap while operating. More later on it. If you have questions or would like a copy of their brochure, call or write Alternative Engineering Inc., P O Box 128, Gardiner, ME 04345 (207) 582-6327.

(In this photo, the arcade unit is sitting on top of the new Viper 1 box, while the keyboard is in front. The Viper box is resting on some unseen supports - the keyboard is only 9" deep.)



TRADE: I HAVE EXCESS #5002 CARTRIDGES AVAILABLE FOR TRADE,
(POKER/ACEY DEUCEY/BLACK JACK). I NEED #2005 STAR BATTLE,
#2010 DOGPATCH, #2011 GALACTIC INVASION, #2014 GRAND PRIX,
AND THE DEALER DEMO CARTRIDGE. WRITE BEFORE SHIPPING TO:
JAMES E. NOLL, P.O.BOX 16392, IRVINE, CA 92713

TAPES NOW AVAILABLE:

G1 "Haunted House" (Bally Basic only) Nine separate programs are used
in this game! An adventure game with corny jokes!

"Guess Five" - a 'Mastermind' type game - addictive!

G2 "Quickdraw"-beat the Bally or another player to the draw!

"Skunk" - based on the popular dice game. 1-4 players

Either tape \$8.95 pp. Please specify if you have new (AstroVision) basic
Don Gladden, 59400 Nine Mile, South Lyon, MI 48178 313-437-3984

All software sales by Rich Tietjens and/or R&D Enterprises International are
indefinitely suspended due to military postal regulations. Anyone with
unfilled orders may send a stamped, self addressed envelope and a photocopy
of your cancelled check to receive a refund. Address all correspondence to
Rich Tietjens, PSC Box 542, APO Miami 34004. Mail for R&D Enterprises will
not be delivered by the post office.

USER GROUP INTEREST? in the San Antonio area, Contact W. Fidone, 8288
Eckert #5, San Antonio 78240. In the Quad Cities Iowa area, contact Ken
Springsteen, 1935 Winding Hill Rd., #1008, Davenport, 52807

- 44 -

Robert Fabris, weary
3626 Morrie Drive
San Jose, CA 95127-9990

FIRST CLASS
U. S. POSTAGE
PAID
Sunnyvale, CA
Permit No. 931

63301 BRG2917H
ARTHUR BERGANTZ
2917 HEADLAND DRIVE
ST CHARLES, MO

63301